REMARKS

In the Office Action, the Examiner noted that claims 1-38 are pending in the application, that claims 1-6, 9, 15-27 and 33-37 stand rejected, that claims 7, 8, 10-14, 32 and 38 are allowed and that claims 28-31 are objected to. The Examiner further noted that claims 28-31 would be allowable if written in independent form including all of the limitations of the base claim and any intervening claims. By this response claims 26 and 27 are cancelled and claim 25 is amended to more clearly define the invention of the Applicant and not in response to prior art. All other claims are unamended by this response.

In view of the above amendments, the following discussion, and the 37 C.F.R. §1.132 Declaration included herein, the Applicant respectfully submits that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102 or obvious under the provisions of 35 U.S.C. § 103. Thus, the Applicant believes that all of these claims are now in allowable form.

Rejections

A. 35 U.S.C. § 102

The Examiner rejected claim 25 under 35 U.S.C. 102(b) as being anticipated by the Pua et al. (U. S. Patent 6,647,176, hereinafter "Pua"). The rejection is respectfully traversed.

The Examiner alleges that regarding claim 25, Pua discloses a system for determining polarization mode dispersion in a transmission system, comprising all of the aspects of the Applicant's amended claim 25. The Applicant respectfully disagrees.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrik Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added).

The Applicant respectfully submits that Pua does not teach, suggest or disclose each and every element of the Applicant's claimed invention arranged

as in the claims. More specifically, Pua fails to teach, suggest or disclose at least the Applicant's invention of amended claim 25, which specifically recites:

> "A method of determining a polarization mode dispersion in a transmission system, comprising:
>
> (a1) directing a data signal characterized by a wavelength range through a polarization switch;
>
> (a2) propagating the data signal through an optical fiber in the transmission system; and
>
> (b) determining the polarization mode dispersion in the optical fiber concurrent with (a2) by:
>
> (b1) directing a portion of the data signal into a polarization analyzer;
>
> (b2) measuring optical powers for the portion of the data signal as a function of wavelength within the wavelength range for at least two different and non-orthogonal polarization states of the data signal generated by the polarization switch; and
>
> (b3) generating polarization parameters from the optical powers measured in (b2)." (emphasis added)

It is evident from at least claim 25 recited above that the Applicant's invention is directed at least in part to a method for measurement of polarization mode dispersion wherein optical powers for the portion of a data signal are measured as a function of wavelength within a wavelength range, and polarization parameters are generated from the optical powers measured for at least two different and non-orthogonal polarization states of the data signal generated by the polarization switch. In support of at least claim 25, the Applicant in the specification, specifically recites:

> "In the WDM transmission system 500, different transmitters (TX1, TX2, ..., TXN) are used to generate light (or optical carrier) at different wavelengths for data transmission. The carrier signals are modulated by respective data bit streams to form data signals DS1, DS2, ..., DXN. These data signals DS1, DS2, ..., DXN, having different carrier wavelengths are combined in a multiplexer 510 to form a single optical signal 580." (See Specification, page 19, lines 18-25).
>
> "The PMD compensator 516 is connected at its output 522 to a demultiplexer 524 for separating the transmitted signal 580b into its respective channel components DS1, DS2, ..., and DSN. The optical signals of the respective channels are detected by a number of receivers RX1, RX2, ..., RXN." (See Specification, page 20, lines 21-26).

"To determine the PMD of the transmission fiber 512, it is necessary to perform polarization measurements for at least two different and non-orthogonal polarization states of the optical signal 580 launched into the transmission fiber 512. For example, with the polarization switch 502 set at a first orientation, a first set of polarization measurements may be performed according to steps such as those outlined in FIG. 4. Subsequently, a second set of polarization measurements is performed with the polarization switch 502 set at a second orientation, e.g., about 45° with respect to the first position." (See Specification, page 21, line 19-30). (emphasis added).

The Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in Pua for a method of measuring polarization mode dispersion including "measuring optical powers for the portion of the data signal as a function of wavelength within the wavelength range for at least two different and non-orthogonal polarization states of the data signal generated by the polarization switch" and "generating polarization parameters from the optical powers measured" as taught and claimed in at least the Applicant's claim 25. In contrast to the Applicant's claim 25, Pua specifically recites:

"In operation, the transmitter 302 transmits the optical signal to the polarization scrambler 304. In some embodiments of the invention, the transmitter 302 includes a laser diode. The polarization scrambler 304 then scrambles the state of polarization of the optical signal that carries user information." (See Pua, col. 4, lines 53-58).

"The splitter 308 then receives the optical signal over the active optic fiber 306." (See Pua, col. 5, lines 4-5).

"The splitter 308 splits the optical signal. The splitter 308 transfers the optical signals to the first polarization controller 310 and the second polarization controller 340. The first polarization controller 310 receives the optical signal from the splitter 308. The first polarization controller 310 then changes the state of polarization of the optical signal based on signals received from the links 332 and 334. In one embodiment, the first polarization controller 310 aligns the active fiber link's 306 output principal state of polarization with the principal state of polarization of the PMD emulator 312. The first polarization controller 310 transfers the optical signal to the PMD emulator 312. The splitter 314 in the PMD emulator 312 receives the optical signal and splits the optical signal into two optical signals with orthogonal polarizations. The splitter 314 transmits one optical signal with the orthogonal polarization to the link 316. The splitter 314 also

> transmits the other optical signal with the orthogonal polarization to the delay component 318. The delay component 318 delays the optical signal with the orthogonal polarization based on signals received from the compensation algorithm system 330. The PMD emulator 312 recombines the two optical signals with orthogonal polarizations from the link 316 and the delay component 318 before transferring the optical signal to the photodetector 320.
>
> The photodetector 320 receives the optical signal. The photodetector 320 converts the optical signal to an electrical signal before transferring the electrical signal to the RF signal processor 322. The bandpass filter 328 receives the electrical signal. The bandpass filter 328 is a narrow pass band centered at half the signal data rate. The bandpass filter 328 then transfers the electrical signal to the square-law detector 326. The square-law detector 326 processes the electrical signal and transfers the electrical signal to the lowpass filter 324. The lowpass filter 324 receives the electrical signal. The lowpass filter 324 converts the electrical signal to a control signal before transferring the control signal to the compensation algorithm system 330." (See Pua, col. 5, lines 15-52).

In Pua, as evident from the disclosures of Pua presented above, the PMD compensation system measures the differential group delay and the principal states of polarization of the PMD in the active optic fiber by estimating the differential group delay and the principal states of polarization of the PMD in the active optic fiber. In Pua, the differential group delay and the principal states of polarization of the PMD in the active optic fiber are estimated using a compensation algorithm. The compensation algorithm system sets the emulated differential group delay of the PMD emulator to an arbitrary but fixed value. Also, the compensation algorithm system sets the initial PMD emulator differential group delay to 0 picoseconds. The compensation algorithm system reads the power of the control signal. The compensation algorithm system then checks if the power at the control signal is at a minimum. If the power at the control signal is not at a minimum, the compensation algorithm system changes the first polarization controller values. Once the first polarization controller values are changed, the compensation algorithm system again reads the power to check to see if it is at a minimum and repeats the above procedure.

If the power at the control signal is at a minimum, the compensation algorithm system varies the emulated differential group delay in the PMD emulator and measures the power at the control signal. The compensation algorithm system then determines the maximum power of the control signal based on the measurements. The compensation algorithm system estimates the differential group delay of the active optic fiber by using the differential group delay value at the maximum power of the control signal. (See Pua, col. 5, line 53 through col. 6, line 22).

However, there is absolutely no teaching, suggestion or disclosure in Pua for a method of measuring polarization mode dispersion including "measuring optical powers for the portion of the data signal as a function of wavelength within the wavelength range for at least two different and non-orthogonal polarization states of the data signal generated by the polarization switch" and "generating polarization parameters from the optical powers measured" as taught and claimed in at least the Applicant's claim 25. As such, the Applicant submits that Pua does not teach, suggest or disclose each and every element of the Applicant's claimed invention arranged as in at least claim 25.

Even further, the Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in Pua for determining the polarization mode dispersion in an optical fiber concurrent with propagating a data signal through the optical fiber in a transmission system as taught in the Applicant's Specification and claimed by at least the Applicant's amended claim 25. In support of this limitation of claim 25, the Applicant specifically recites in the Specification:

> "According to another aspect of the invention, the polarization analyzer 200 can be used for measurement of polarization mode dispersion (PMD) in a transmission system. In particular, it can be used as part of a PMD monitoring unit for on-line PMD measurement, <u>concurrent with data transmission (i.e., without interrupting data transmission)</u> in a WDM system." (See Specification, page 18, line 32 through page 19, line 5).

and

"In the schematic representation of FIG. 5, it is assumed that the transmission fiber 512 represents the entire transmission line characterized by a polarization mode dispersion (PMD) to be monitored using embodiments of the invention. At its output end 514, the transmission fiber 512 is connected respectively to the polarization analyzer 200 and a PMD compensator 516. <u>As such, the transmission signal 580 is split into two portions – one portion 580a being coupled into the polarization analyzer 200, and another portion 580b being coupled to the PMD compensator 516</u>." (See Specification, page 20, lines 4-14).

and

"The polarization switch 502 and the polarization analyzer 200, which collectively form the PMD monitor 550, can be used to provide real-time, on-line PMD measurements for the transmission fiber 512. Since the signal source used for PMD measurement is provided by the transmission or data signal 580 (as opposed to an external signal source), embodiments of the invention <u>allow PMD measurements to be performed concurrent with data transmission in the transmission system 500, without interrupting data transmission</u>."

The Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in Pua for "determining the polarization mode dispersion in the optical fiber concurrent with" "propagating the data signal through an optical fiber in the transmission system" as taught in the Applicant's Specification and claimed by at least the Applicant's amended claim 25.

For at least the reasons stated above, the Applicant respectfully submits that Pua does not teach, suggest or disclose the invention of the Applicant, at least with respect to claim 25.

Therefore, the Applicant respectfully submits that claim 25 is not anticipated by the teachings of Pua and, as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

B. 35 U.S.C. § 102

The Examiner rejected claim 19 under 35 U.S.C. 102(e) as being anticipated by the Erdogan et al. (U. S. Patent 6,211,957, hereinafter "Erdogan"). The rejection is respectfully traversed.

The Examiner alleges that regarding claim 19, Erdogan discloses an apparatus for polarization measurement comprising a polarization controller and a polarizer (fig. 6, element 62, col. 4, lines 48-50 and col. 10, lines 52-56) where the quarter-wave plate is inherently a polarization controller. The Examiner further alleges that Erdogan teaches a wavelength dispersive element and a photo-detector as in the Applicant's claims. The Applicant respectfully disagrees.

"Anticipation requires the presence in a single prior art reference disclosure of <u>each and every element of the claimed invention</u>, <u>arranged</u> as in the claim" (<u>Lindemann Maschinenfabrik GmbH v. American Hoist & Derrik Co.</u>, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added).

The Applicant respectfully submits that Erdogan does not teach, suggest or disclose each and every element of the Applicant's claimed invention arranged as in the claims. More specifically, Erdogan fails to teach, suggest or disclose at least the Applicant's invention of claim 19, which specifically recites:

> "An apparatus for polarization measurement, comprising:
> a polarization controller adapted to receive an optical signal and perform defined polarization transformations of the received optical signal;
> a polarizer adapted to receive the optical signal exiting the polarization controller and define a polarization axis for the received optical signal;
> <u>a wavelength dispersive element for separating the optical signal exiting the polarizer into a plurality of spectral components</u>; and
> a photo-detector for detecting the plurality of spectral components."

It is evident from at least claim 19 recited above that the Applicant's invention is directed at least in part to an apparatus for polarization measurement wherein a polarizer receives an optical signal from a polarization controller and the optical signal exiting the polarizer is separated into a plurality of spectral components by a wavelength dispersive element. More specifically, in the invention of the Applicant, at least with regard to claim 19, an optical signal undergoes defined polarization transformations in a polarization controller. The optical signal is then communicated to the linear polarizer, which is set at a fixed orientation, to define a polarization axis for the exiting optical signal. The exiting optical signal is then separated into wavelength components by a wavelength

dispersive element. In support of at least claim 19, the Applicant in the specification, specifically recites:

> "The wavelength dispersive element 206 is used to disperse, or separate, the optical signal 250 into its spectral components within a wavelength range from λ_{min} to λ_{max}, where λ_{min} and λ_{max} denote the lower and upper wavelength limits for the spectral range of the optical signal 250. Depending on their wavelengths, different spectral components are dispersed into different angles." (See Specification, page 6, lines 20-26).

> "The wavelength dispersive element 206 should have a bandwidth that is sufficiently large to encompass the bandwidth of the optical signal 250. In one embodiment, the wavelength dispersive element 206 is a grating, e.g., a diffraction grating, with a bandwidth of about 32 nm and a spectral resolution of about 0.1 nm. Other types of wavelength dispersive element 206 may also be used, e.g., a fiber grating, a prism or scanning etalon. In general, it is preferable that the wavelength dispersive element 206 does not involve mechanical scanning, in order to have improved reliability and increased speed for polarization measurement of a broadband signal." (See Specification, page 7, lines 9-20).

The Examiner cites a passage from Erdogan for teaching the wavelength dispersive element of the Applicant's claim 19, however the Applicant respectfully submits that the cited passage in no way teaches the wavelength dispersive element of the Applicant's invention. The passage cited by the Examiner specifically recites:

> "It is recognized that in some instances it would be valuable to provide polarization characterization information for multiple wavelengths simultaneously propagating through the transmission fiber. Thus, an alternative embodiment of the present invention is realized by substituting a detector array, oriented along the fiber axis, for each single detector element. In this arrangement, the detector array can be used to exploit the fact that different wavelengths will diffract out of the fiber at slightly different angles. This multi-wavelength approach is well-known for simple tap arrangements including gratings, where improved wavelength resolution is obtained by focusing the out-coupled beam at the detector array using a small amount of chirp in the grating, an independent bulk lens element, or a bending of the fiber grating with an appropriate radius of curvature." (See Erdogan, col. 11, lines 19-34).

The above passage of Erdogan teaches using a detector array for capturing the different wavelengths exiting a fiber, the fiber having a grating embedded therein. It however, in no way teaches, suggests or discloses the invention of the Applicant for "a wavelength dispersive element for separating the optical signal exiting the polarizer into a plurality of spectral components" as taught in the Applicant's Specification and claimed by at least the Applicant's claim 19. Erdogan does not teach a wavelength dispersive element for separating an optical signal exiting a polarizer into a plurality of spectral components. The Applicant respectfully submits that merely because Erdogan mentions a fiber grating, that does not mean that Erdogan teaches the wavelength dispersive element of the Applicant's claim 19. Again, anticipation requires the presence in a single prior art reference disclosure of <u>each and every element of the claimed invention</u>, <u>arranged as in the claim</u>. Erdogan does not teach a wavelength dispersive element as in the Applicant's invention and further does not teach a wavelength dispersive element arranged as in the Applicant's claim 19.

Even further, the Applicant's claim 19 specifically claims "a polarization controller adapted to receive an optical signal and perform defined polarization transformations of the received optical signal". There is absolutely no teaching, suggestion or disclosure in Erdogan for the defined polarization transformations of the Applicant's invention. In support of this limitation of claim 19, the Applicant, in the Specification, specifically recites:

> "At step 403, the polarization controller 202 is set to a first position, and the optical signal is converted from its arbitrary polarization state to a transformed polarization state PC1.
>
> At step 405, the optical signal is directed to the linear polarizer 204, which is set at a fixed orientation to define a polarization axis for the exiting optical signal." (See Specification, page 11, lines 22-30).
>
> "Similar optical power measurements are subsequently performed, as shown in step 411, with the polarization controller 202 set to at least three other positions, each of which is different from the first position and from each other. In general, many different combinations of four positions may be used for the polarization controller 202 in performing the polarization measurement according to the method of the invention. For example, one possible combination of four settings of the polarization controller 202 may consist of launching a signal with transverse electric

> (TE) mode into the polarization controller 202. The polarization controller 202 may be set sequentially to produce four output or transformed polarization states. If one uses a Poincare sphere representation of Stokes vectors for describing the polarization states of the signal, then these four transformed polarization states should preferably have maximum spacings from each other on the Poincare sphere – e.g., forming a tetrahedron." (See Specification, page 13, line 17, through page 14, line 2).

In the invention of the Applicant, the polarization controller is set to at least four positions and a detector array is used to measure the optical powers of the spectral components. In contrast to at least the Applicant's claim 19, Erdogan specifically recites:

> "An arrangement for directly measuring the out-coupling from an exemplary grating within a polarimeter of the present invention is illustrated in FIG. 6. A single-frequency, tunable laser source 60 provides the input signal used for measurement purposes. A following polarization controlling arrangement 62 including a quarter-wave plate 64, polarizer 66 and half-wave plate 68 is used to obtain predetermined states of polarization to be incident on the grating being tested. In particular, quarter-wave plate 64 and polarizer 66 are adjusted to produce maximum available power in a linearly polarized state. Half-wave plate 68 is then rotated to orient the linear polarized light along a desired direction." (See Erdogan, col. 10, lines 48-59).

In the invention of Erdogan, a polarization controlling arrangement including a quarter-wave plate, polarizer and half-wave plate is used to obtain predetermined states of polarization to be incident on the grating being tested. Specifically, the quarter-wave plate and the polarizer are adjusted to produce maximum available power in a linearly polarized state. Subsequently, the optical signal is communicated to an included grating and detectors are positioned at different locations to detect the diffracted light of the grating. Several detectors are used to detect the output of the grating at different angles. In contrast to the Invention of the Applicant, Erdogan does not teach, suggest or make obvious "a polarization controller adapted to receive an optical signal and perform defined polarization transformations of the received optical signal" as taught and claimed by at least the Applicant's claim 19. More specifically, in the invention of the

Applicant, only a single detector array is necessary because the polarization controller transforms the polarization of an input optical signal and the polarizer defines a polarization axis for the various polarization states set by the polarization controller, such that a single detector array may be used for detecting the plurality of spectral components.

In contrast, in Erdogan, a polarization controlling arrangement does not transform the polarization of an input optical signal to at least four different states such that, in combination with a polarizer, a single detector array may be used to perform the necessary polarization measurements of the present invention. Instead, in Erdogan, a quarter-wave plate and polarizer are adjusted to produce maximum available power in a linearly polarized state and a half-wave plate is then rotated to orient the linear polarized light along a desired direction. The optical signal is then communicated to an included grating which diffracts the incident optical signal in different directions according to polarization states wherein various detectors detect respective portions of the diffracted optical signal. As such, the Applicant submits that there is absolutely no teaching, suggestion or description in Erdogan for at least "a polarization controller adapted to receive an optical signal and perform defined polarization transformations of the received optical signal" as taught and claimed by at least the Applicant's claim 19.

For at least the reasons stated above, the Applicant respectfully submits that Erdogan does not teach, suggest or disclose the invention of the Applicant, at least with respect to claim 19.

Therefore, the Applicant respectfully submits that claim 19 is not anticipated by the teachings of Erdogan and, as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

C. 35 U.S.C. § 102

The Examiner rejected claims 25-27 under 35 U.S.C. 102(e) as being anticipated by Moeller (U. S. Published Patent Application 09/298,296).

The Examiner alleges that regarding claim 25, Moeller discloses a system for determining polarization mode dispersion in a transmission system, comprising all of the aspects of the Applicant's claim 25.

In response the Applicant is submitting an affidavit in accordance with 37CFR 1.132 as suggested by the Examiner, indicating that the invention disclosed but not claimed in the reference was derived from the inventor of this application (specifically Moeller) and is thus not the invention "by another".

As such, the Applicant respectfully submits that claim 25 is not anticipated by the teachings of "another" and, as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Claims 26-27 have been cancelled.

D. 35 U.S.C. § 103

The Examiner rejected claims 1-6, 15-21 and 24 under 35 U.S.C. § 103 as being unpatentable over Lee (U.S. Patent No. 5,815,270) in view of Hunsperger et al., (U.S. Patent No. 4,773,063, hereinafter "Hunsperger"). The rejection is respectfully traversed.

The Examiner alleges that regarding claim 1, Lee teaches all of the aspects of the Applicant's invention except that Lee does not disclose directing an optical signal from the polarizer to a wavelength dispersive element to generate a dispersed optical signal comprising a plurality of spectral components each characterized by a wavelength range, or directing the dispersed optical signal into a photo-detector for detecting the plurality of spectral components. However, the Examiner cites Hunsperger for teaching a grating demultiplexer and a WDM photodetector. The Examiner alleges that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the polarization measurement system of Lee by replacing the photodetector of Lee with the grating demultiplexer and a WDM photodetector of Hunsperger. The Applicant respectfully disagrees.

The Applicant agrees with the Examiner that Lee fails to teach, suggest or disclose directing an optical signal from the polarizer to a wavelength dispersive element to generate a dispersed optical signal comprising a plurality of spectral components each characterized by a wavelength range, or directing the dispersed optical signal into a photo-detector for detecting the plurality of spectral components as taught in the Applicant's specification and claimed by at least the Applicant's claim 1.

In addition, the Applicant respectfully submits that there is absolutely no suggestion or motivation to combine the teachings of Lee and Hunsperger. More specifically, for prior art reference to be combined to render obvious a subsequent invention under 35 U.S.C. § 103, there must be something in the prior art as a whole which suggests the desirability, and thus the obviousness, of making the combination. Uniroyal v. Rudkin-Wiley, 5 U.S.P.SQ.2d 1434, 1438 (Fed. Cir. 1988). **The teachings of the references can be combined only if there is some suggestion or incentive in the prior art to do so.** In re Fine, 5 U.S.P.SQ.2d 1596, 1599 (Fed. Cir. 1988). **Hindsight is strictly forbidden.** It is impermissible to use the claims as a framework to pick and choose among individual references to recreate the claimed invention Id. at 1600; W.L. Gore Associates, Inc., v. Garlock, Inc., 220 U.S.P.Q. 303, 312 (Fed. Cir. 1983).

Moreover, the mere fact that a prior art structure could be modified to produce the claimed invention would not have made the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992); In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Again, the Applicant strongly submits that there is absolutely no motivation or suggestion in either Lee or Hunsperger for the combination of the references in an attempt to teach or make obvious the invention of the Applicant at least with regard to claim 1.

Even further, the Applicant strongly submits that even if a motivation or suggestion to combine the references did exist (which the Applicant strongly believes that no such motivation or suggestion exist), the Applicant submits that

any allowable combination of the references fails to teach, suggest or make obvious the invention of the Applicant, at least with respect to claim1. More specifically, Hunsperger teaches a wavelength division method and system employing a radiation transmissive planar waveguide provided with collimating and focusing lenses and with a periodic radiation transmissive diffraction grating incorporating radiation reflecting elements in spaced array, preselected, in demultiplexing service, to separate into individual entities an optical signal input constituting a multiplicity of coherent radiation signals of different characteristic wavelengths transmitted simultaneously via the waveguide and, in multiplexing service, to consolidate a multiplicity of coherent radiation signals individually introduced to the grating via the waveguide along angular courses substantially coincident with the angular courses taken by individual radiation signals of corresponding wavelengths exiting the grating during demultiplexing service, and means directing the signals to dedicated receptors. (See Hunsperger, Abstract).

In support of the invention, Hunsperger specifically recites:

> "Referring to FIG. 1, a conventional unidirectional fiber optic communication system utilizing wavelength-division multiplexing (WDM) comprises signal inputs 5a to 5n (received, respectively, from channels 1 to n) supplied to wavelength-division multiplexer (WDM) 6a which, conventionally, can be a known arrangement of beam splitters and lasers, the multiplexed signal from which is transmitted via a single optical fiber 7 to a receptor WDM device 6b (conventionally a prism, reflection grating, or multilayer thin-film dielectric filter arrangement) which resolves the composite signal into its component signal outputs 9a to 9n directed into individual detectors 10a to 10n which deliver information to their predetermined destinations, channels 1' to n'." (See Hunsperger, col. 3, lines 4-18).

As evident from at least the portion of Hunsperger recited above, in the invention of Hunsperger the separated components of a demultiplexed optical signal are directed to individual respective detectors which deliver information to separate predetermined destinations. If the teachings of Hunsperger were allowed to be combined with the teachings of Lee, the resultant invention would be a method of polarization wherein an optical signal is directed Into a quarter-

wave plate, then is directed into a polarizer, then is directed to a reflector WDM device (as taught in Hunsperger, a prism, reflection grating, or multilayer thin-film dielectric filter arrangement), and is finally directed to individual respective detectors which deliver the information to separate predetermined destinations (as taught in Hunsperger). This is in contrast to the invention of the Applicant wherein "the dispersed optical signal" is directed "into a photo-detector for detecting the plurality of spectral components" as claimed by at least the Applicant's claim 1.

Because Lee, as conceded by the Examiner, does not teach, suggest or disclose directing the dispersed optical signal into a photo-detector for detecting the plurality of spectral components as taught by the Applicant and claimed by at least claim 1, the dispersed optical signals and photodetectors for receiving the dispersed optical signals, if proper to combine the references, would be taught by Hunsperger. As such, any polarized optical signal as taught in Lee would be dispersed and detected as taught in Hunsperger, which results in detected optical signals whose information is delivered to separate predetermined destinations. However, the Applicant continues to maintain that the combination of the references is improper.

As such, the Applicant submits that the teachings of Lee and Hunsperger, alone or in any allowable combination, (which the Applicant submits that no motivation or suggestion to combine exists) do not make obvious the invention of the Applicant, at least with respect to independent claim 1.

Therefore, the Applicant submits that claim 1, as it now stands, fully satisfies the requirements under 35 U.S.C. §103 and is patentable thereunder.

Likewise, independent claims 15 and 19 recite similar relevant features as those recited in claim 1. As such, the Applicant respectfully submits that independent claims 11 and 15, as they now stand, also fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

Furthermore, dependent claims 2-6, 9, 16-18, 20-21 and 24 depend either directly or indirectly from independent claims 1, 15 and 19, respectively, and

recite additional features thereof. As such, and for at least for the reasons recited above, the Applicant submits that these dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

E. 35 U.S.C. § 103

The Examiner rejected claims 22-23 under 35 U.S.C. § 103 as being unpatentable over Lee in view of Hunsperger as applied to claims 1-6, 9, 15-21, and 24 above, in further view of Damask (U.S. Patent No. 6,377,719). The rejection is respectfully traversed.

Claims 22-23 depend either directly or indirectly from independent claim 19 and recite further limitations thereof. The Examiner applied Lee and Hunsperger for the rejection of claims 22-23 as applied above for the rejection of claim 19. As described above, and for at least the reasons described above, the teachings of Hunsperger and Lee, alone or in any allowable combination, do not teach, suggest or make obvious the teachings of the Applicant's invention, at least with respect to independent claim 19. As such, the Applicant submits that at least because the teachings of Hunsperger and Lee, alone or in any allowable combination, do not teach, suggest or make obvious the teachings of the Applicant's invention with regard to claim 19, the teachings of Hunsperger and Lee, alone or in any allowable combination, also do not teach, suggest or make obvious the teachings of the Applicant's invention with regard to claims 22-23.

Furthermore, as Damask was filed March 01, 2000 and issued April 23, 2002 after the Applicant's February 13, 2001 filing date and after the Applicant's August 25, 2000 priority date, Damask can only be a 102(e) –type reference. Damask is currently assigned to Lucent Technologies, Inc., and the Applicant's invention is also assigned to Lucent Technologies, Inc. The Applicant's invention and Damask were, at the time the Applicant's invention was made,

owned by, or subject to the obligation of assignment to, Lucent Technologies, Inc. Since this Application is a patent application filed on or after November 29, 1999, Damask does not preclude patentability under the provisions of 35 U.S.C.§103(c), as amended by the American Inventors' Protection Act of 1999 (see MPEP 706.02(l)(1)). Therefore, the Damask reference has been improperly cited against the Applicant's invention.

Therefore, the Applicant submits that claims 22-23, as they now stand, fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder.

F. 35 U.S.C. § 103

The Examiner rejected claims 33-35 under 35 U.S.C. § 103 as being unpatentable over Gordon et al. (US Patent No. 4,773,063, hereinafter "Gordon") in view of Lee and further in view of Hunsperger. The rejection is respectfully traversed.

The Examiner alleges that regarding claim 33, Gordon teaches all of the aspects of the Applicant's invention, except that Gordon does not disclose that a polarization analyzer comprises a polarization controller, a polarizer, a wavelength dispersive element and a photodetector and does not disclose a wavelength dispersive element and a photodetector for receiving the separated channels. As such the Examiner cites Lee for teaching a polarization controller and a polarizer and setting the polarization controller to a plurality of positions, and for each of the plurality of positions, measuring the optical poser of the optical signal using a photodetector. The Examiner further cites Hunsperger for teaching a wavelength dispersive element and a photodetector for receiving the separated channels.

As Gordon was filed March 08, 2000 and issued February 11, 2003, after the Applicant's February 13, 2001 filing date and after the Applicant's August 25, 2000 priority date, Gordon can only be a 102(e) –type reference. Gordon is currently assigned to Lucent Technologies, Inc., and the Applicant's invention is

also assigned to Lucent Technologies, Inc. The Applicant's invention and Gordon were, at the time the Applicant's invention was made, owned by, or subject to the obligation of assignment to, Lucent Technologies, Inc. Since this Application is a patent application filed on or after November 29, 1999, Gordon does not preclude patentability under the provisions of 35 U.S.C.§103(c), as amended by the American Inventors' Protection Act of 1999 (see MPEP 706.02(l)(1)). Therefore, the Gordon reference has been improperly cited against the Applicant's invention.

Furthermore and as conceded by the Examiner, Lee and Hunsperger alone do not render obvious the invention of the Applicant at least with respect to claims 33-35. Even further and as described above, Lee and Hunsperger, alone or in any allowable combination (which the Applicant respectfully submits that no motivation or suggestion to combine the references exists) do not teach, suggest or make obvious at least "a polarization analyzer connected to an output of the optical fiber, wherein the polarization analyzer comprises a polarization controller, a polarizer, a wavelength dispersive element and a photo-detector" as claimed in at least independent claim 33, which is similar to independent claim 1.

As such, the Applicant submits that the teachings of Gordon, Lee and Hunsperger, alone or in any allowable combination, (which the Applicant submits that no motivation or suggestion to combine exists) do not make obvious the invention of the Applicant, at least with respect to independent claim 33.

Therefore, the Applicant submits that claim 33, as it now stands, fully satisfies the requirements under 35 U.S.C. §103 and is patentable thereunder.

Furthermore, dependent claims 34-35 depend either directly or indirectly from independent claim 33 and recite additional features thereof. As such, and for at least for the reasons recited above, the Applicant submits that these dependent claims are also not obvious and fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

G. 35 U.S.C. § 103

The Examiner rejected claim 36-37 under 35 U.S.C. § 103 as being unpatentable over Gordon in view of Lee and further in view of Hunsperger, as applied to claims 33-35 above and further in view of Damask. The rejection is respectfully traversed.

Claims 36-37 depend either directly or indirectly from independent claim 33 and recite further limitations thereof. The Examiner applied Gordon, Lee and Hunsperger for the rejection of claims 36-37 as applied above for the rejection of claim 33-35. As described above, and for at least the reasons described above, the teachings of Lee and Hunsperger, alone or in any allowable combination, do not teach, suggest or make obvious the teachings of the Applicant's invention, at least with respect to independent claim 33-35. As such, the Applicant submits that at least because the teachings of Hunsperger and Lee, alone or in any allowable combination, do not teach, suggest or make obvious the teachings of the Applicant's invention with regard to claim 33-35, the teachings of Hunsperger and Lee, alone or in any allowable combination, also do not teach, suggest or make obvious the teachings of the Applicant's invention with regard to claims 36-37.

Furthermore, As Gordon was filed March 08, 2000 and issued February 11, 2003, after the Applicant's February 13, 2001 filing date and after the Applicant's August 25, 2000 priority date, Gordon can only be a 102(e) –type reference. Gordon is currently assigned to Lucent Technologies, Inc., and the Applicant's invention is also assigned to Lucent Technologies, Inc. The Applicant's invention and Gordon were, at the time the Applicant's invention was made, owned by, or subject to the obligation of assignment to, Lucent Technologies, Inc. Since this Application is a patent application filed on or after November 29, 1999, Gordon does not preclude patentability under the provisions of 35 U.S.C.§103(c), as amended by the American Inventors' Protection Act of

1999 (see MPEP 706.02(l)(1)). Therefore, the Gordon reference has been improperly cited against the Applicant's invention.

Even further, as Damask was filed March 01, 2000 and issued April 23, 2002 after the Applicant's February 13, 2001 filing date and after the Applicant's August 25, 2000 priority date, Damask can only be a 102(e) –type reference. Damask is currently assigned to Lucent Technologies, Inc., and the Applicant's invention is also assigned to Lucent Technologies, Inc. . The Applicant's invention and Damask were, at the time the Applicant's invention was made, owned by, or subject to the obligation of assignment to, Lucent Technologies, Inc. Since this Application is a patent application filed on or after November 29, 1999, Damask does not preclude patentability under the provisions of 35 U.S.C.§103(c), as amended by the American Inventors' Protection Act of 1999 (see MPEP 706.02(l)(1)). Therefore, the Damask reference has been improperly cited against the Applicant's invention.

As such and for at least the reasons stated above, the Applicant submits that claims 36-37, as they now stand, fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Applicant's Note

The Applicant would like to thank the Examiner for the indication of allowable subject matter, however, the Applicant submits that at this time all of the Applicant's claims are allowable over any properly cited prior art references submitted by the Examiner.

Conclusion

Thus the Applicant submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. § 102 or obvious

under the provisions of 35 U.S.C. § 103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending n the application, it is requested that the Examiner telephone Jorge Tony Villabon, Esq. at (732) 530-9404 x 1131 or Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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